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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,354	01/31/2007	Dietmar Spanke	SPAN3008/FJD	9789
23364 7590 06/29/2009 BACON & THOMAS, PLLC 625 SLATERS LANE FOURTH FLOOR ALEXANDRIA, VA 22314-1176				
EXAMINER				
DEVITO, ALEX T				
ART UNIT		PAPER NUMBER		
2856				
MAIL DATE		DELIVERY MODE		
06/29/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/583,354

**Applicant(s)**

SPANKE ET AL.

**Examiner**

ALEX DEVITO

**Art Unit**

2856

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11, 17, 18 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11, 17, 18 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

### **DETAILED ACTION**

This Office Action is in response to the Applicant's communication filed on April 20, 2009. In virtue of this communication, claims 11, 17, 18 and 20 are currently presented in the instant application.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11, 17, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kroemer et al. (U.S. Patent No. 5,587,969).

With respect to Claim 11, Kroemer discloses a method for measuring a fill level of a fill substance in a container using a fill level measuring device operating according to a travel-time principle, comprising the steps of: sending periodic transmission signals toward the fill substance (column 4, lines 7-9); registering and converting their echo signals into an echo function (column 5, lines 28-29 and see Figure 3 for the echo profile as a function); and determining at least one echo characteristic of the echo function (column 5, lines 33-34), and, on the basis of echo characteristics of at least one preceding measurement, a prediction is derived for echo characteristics to be expected

in the case of a current measurement (column 5, lines 40-44), the echo characteristics include travel-times of maxima of the echo function (column 5, lines 33-34), especially a maxima of fill substance surface, a maxima of a floor of the container or maxima of a fixedly installed disturbance on the basis of travel-time of at least one maximum of a previous measurement, a prediction is made for travel-time of a corresponding maximum to be expected in the case of the current measurement (column 5, lines 33-44 and 40-44) wherein: echo characteristics of the current measurement are determined, taking into consideration the prediction; and on the basis of the echo characteristics, the current fill level is determined (column 5, lines 17-44).

Kroemer also discloses that the prediction is made for travel-times of the maxima by calculating an instantaneous rate of change of the travel-times on the basis of at least three preceding measurements (column 8, lines 25-30) and the travel-time to be expected is extrapolated on the basis of this rate of change (column 8, lines 31-33). Kroemer however remains silent with regards to the prediction made for travel-times of the maxima by calculating an instantaneous acceleration and the travel-time to be expected is extrapolated on the basis of the acceleration.

Wikipedia-Polynomial interpolation discloses a method wherein the prediction made for travel-times of the maxima by calculating an instantaneous acceleration and the travel-time to be expected is extrapolated on the basis of the acceleration (page 2, line 1-11).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Kroemer by implementing the method wherein the

prediction made for travel-times of the maxima by calculating an instantaneous acceleration and the travel-time to be expected is extrapolated on the basis of the acceleration as taught by Wikipedia-Polynomial interpolation for a benefit of reducing error (page 2, line 9).

With respect to claim 17, Kroemer discloses a method as claimed in claim 11, wherein: an echo characteristic is a travel-time of a wanted echo (column 5, lines 33-34) reflected on the fill substance surface (column 4, lines 7-9); a predicted travel-time to be expected for the wanted echo reflected on the fill substance surface in the case of a current measurement is ascertained on the basis of at least one preceding measurement (column 5, lines 17-27); that maximum of an echo function for the current measurement is selected whose travel-time has a smallest deviation from the predicted travel-time of the wanted echo reflected on the fill substance surface (columns 7 and 8, lines 67, 1-2); and, taking into consideration the travel-time of this maximum, the current fill level is ascertained (column 7, lines 63-65). Note that choosing the measurement with the lowest probability of being a multiple echo is the same as selecting the measurement with the smallest deviation from the predicted travel time (column 4, lines 24-28).

With respect to claim 20, Kroemer discloses a method as claimed in claim 11, wherein: the measured results are continually (column 7, lines 26-30).

3. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kroemer et al. (U.S. Patent No. 5,587,969) in view of Fehrenkamp (U.S. Application No. 2003/0011480), hereinafter Fehrenkamp.

With respect to claim 18, Kroemer discloses all the claimed limitations of claim 11, as expressly recited above, and also discloses an echo characteristic is a travel-time of an echo (column 5, lines 33-34); a predicted travel-time or an estimated value for the travel-time to be expected for the echo in the case of a current measurement is ascertained on the basis of at least one preceding measurement (column 5, lines 40-44); that maximum of an echo function for the current measurement is selected whose travel-time has a smallest deviation from the predicted travel-time of the echo (columns 7 and 8, lines 67, 1-2); and, taking into consideration the travel-time or the estimated value for the travel-time of this maximum, the current fill level is ascertained (column 7, line 63). Kroemer, however, does not explicitly define that an echo characteristic be a travel-time of an echo reflected on the floor of the container.

Fehrenkamp discloses a method for measuring a fill level of a fill substance in a container using a fill level measuring device operating according to a travel-time principle wherein an echo characteristic is a travel-time of an echo reflected on the floor of the container in order to house the fill level measuring device at the top of the container (paragraph 35, lines 1-8).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method for measuring a fill level of a fill substance in a container of Kroemer by using the travel-time of an echo reflected on the floor of the container as

an echo characteristic as taught by Fehrenkamp for the benefit of housing the fill level measuring device at the top of the container (paragraph 35, lines 1-8).

### ***Response to Arguments***

4. Applicant's arguments filed 4/20/09 have been fully considered but they are not persuasive. With respect to the first paragraph of page 6, the examiner doesn't suggest that Kroemer discloses prediction using acceleration. Rather, the examiner suggests that Kroemer discloses prediction using speed, and makes an obviousness rejection based upon well known advantages to interpolation methods. With respect to the third paragraph, the examiner wishes to note that since Kroemer tracks waves, the maxima are inherently tracked as well. The examiner also does not find that the prior art using multivariate logic to predict echo characteristics to be an issue. Statistical predictions are predictions nonetheless.

### ***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX DEVITO whose telephone number is (571)270-7551. The examiner can normally be reached on flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 5712722208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ALEX DEVITO/  
Examiner, Art Unit 2856

/Hezron Williams/  
Supervisory Patent Examiner, Art Unit 2856